



Attorney's Docket No. 005852.P012

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re Patent Application of: )  
Hassibi, et al. ) Examiner: Not yet assigned  
Application No.: 10/627,557 )  
Filed: July 24, 2003 ) Art Unit: Not yet assigned  
For: Methods and Apparatus for )  
Biomolecule Detection, Identification, )  
Quantification and/or Sequencing )

Commissioner for Patents  
P.O. Box 1450  
Alexandria, Virginia 22313-1450

INFORMATION DISCLOSURE STATEMENT

Sir:

Enclosed is a copy of Information Disclosure Citation Form PTO-1449 or PTO/SB/08 together with copies of the documents cited on that form. It is respectfully requested that the cited documents be considered and that the enclosed copy of Information Disclosure Citation Form PTO-1449 or PTO/SB/08 be initialed by the Examiner to indicate such consideration and a copy thereof returned to applicant(s).

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Date of Deposit:	Jan. 15, 2004
Name of Person Mailing Correspondence:	Debbie Peloguin
Signature	Date
Debbie Peloguin	1-15-04

Docket No.: 005852.P012  
Application No.: 10/627,557

Pursuant to 37 C.F.R. § 1.97, the submission of this Information Disclosure Statement is not to be construed as a representation that a search has been made and is not to be construed as an admission that the information cited in this statement is material to patentability.

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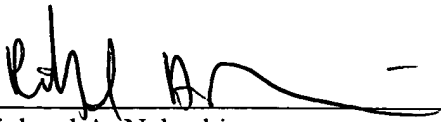
- ☒ 37 C.F.R. §1.97(b).
- ☐ 37 C.F.R. §1.97(c). If so, then enclosed with this Information Disclosure Statement is one of the following:
- ☐ A statement pursuant to 37 C.F.R. §1.97(e) or
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If there are any additional charges, please charge Deposit Account No. 02-2666.

Respectfully submitted,

BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN LLP

Dated: 7/15/04

  
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Richard A. Nakashima  
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## INFORMATION DISCLOSURE

## STATEMENT BY APPLICANT

(use as many sheets as necessary)

Sheet 1 of 10

## Complete if Known

Application Number	10/627,557
Filing Date	07/24/2003
First Named Inventor:	Hassibi, et al.
Art Unit	N/A
Examiner Name	N/A
Attorney Docket Number	5852.P012

## U.S. PATENT DOCUMENTS

Examiner Initials*	Cite No. <sup>1</sup>	Document Number		Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number-Kind Code <sup>2</sup> (if known)				
		US-	5,534,424	07/09/1996	Uhlen et al.	
		US-	6,197,505	03/06/2001	Norberg et al.	
		US-	6,210,891	04/03/2001	Nyren et al.	
		US-	6,258,568	07/10/2001	Nyren	
		US-	6,274,320	08/14/2001	Rothberg et al.	
		US-	5,405,746	04/11/1995	Uhlen	
		US-	20010024790	09/27/2001	Kambara et al.	
		US-	20030049628	03/13/2003	Kambara et al.	
		US-	20030087272	05/08/2003	Kambara et al.	
		US-	4,971,903	11/20/1990	Hyman	
		US-	60/302,909	07/03/2001	Arjang Hassibi	
		US-				
		US-				

## FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No. <sup>1</sup>	Foreign Patent Document		Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T <sup>8</sup>
		Country Code <sup>3</sup>	Number <sup>4</sup> Kind Code <sup>5</sup> (if known)				
		WO 89/09283	✓	05-10-1989	Hyman, Edward, David		
		WO 93/23564	✓	11-25-1993	CEMUBIO-TEKNIK AB		
		WO 01/42496	✓	06-14-2001	PYROSEQUENCING AB		
		WO 02/20836	✓	03-14-2002	PYROSEQUENCING AB		
		WO 00/40750	✓	07/13/2000	AMERSHAM PHARMACIA BIOTECH AB		
		WO 02/20837	✓	03/14/2002	PYROSEQUENCING AB		

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<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b> (use as many sheets as necessary) JAN 20 2004 Sheet 2 of 10		Application Number	10/627,557
		Filing Date	07/24/2003
		First Named Inventor:	Hassibi, et al.
		Art Unit	N/A
		Examiner Name	N/A
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### NON PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published	T <sup>2</sup>
	✓	Susan Chrysogelos and Jack Griffith, "Escherichia coli Single-Strand Binding Protein Organizes Single-Stranded DNA in Nucleosome-Like Units", Proc. Natl. Acad. Sci. USA, Vol. 79, Issue 19, [Part 1: Biological Sciences], Oct. 1, 1982, Pages 5803-5807.	
		Saleem A. Khan, "Plasmid Rolling-Circle Replication: Recent Developments", Molecular Microbiology (2000) 37(3), Pages 477-484.	
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		Huong L. Vu et al., "A Method for Quantification of Absolute Amounts of Nucleic Acids by (RT)-PCR and a New Mathematical Model for Data Analysis", Nucleic Acids Research, 2000, Vol. 28, No. 7.	
		Yao Xu, et al., "A Bioluminescence Resonance Energy Transfer (BRET) System: Application to Interacting Circadian Clock Proteins", Proc. Natl. Acad. Sci. USA, Vol. 96, pp. 151-156, January 1999.	
		Pal Nyren et al., "Enzymatic Method for Continuous Monitoring of Inorganic Pyrophosphate Synthesis", Analytical Biochemistry 151, 504-509 (1985).	
		Pal Nyren, "Enzymatic Method for Continuous Monitoring of DNA Polymerase Activity",	
		Malin Nygren et al., "Quantification Using Multiple PCR Competitors and Bioluminescence Detection".	
		Tanya Vener et al., "Use of Multiple Competitors for Quantification of Human Immunodeficiency Virus Type 1 RNA in Plasma", Journal of Clinical Microbiology, Vol. 36, 1998, Pages 1864-1870.	
		Afshin Ahmadian, et al., "Genotyping by Apyrase-Mediated Allele-Specific Extension", Nucleic Acids Research, 2001, Vol. 29, No. 24.	
		Hossein Fakhrai-Rad, et al., "Pyrosequencing: An Accurate Detection Platform for Single Nucleotide Polymorphisms", Human Mutation 19, Pages 479-485 (2002).	

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				Examiner Name	N/A
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		Tommy Nordstrom, et al., "Method Enabling Fast Partial Sequencing of cDNA Clones", Analytical Biochemistry 292, Pages 266-271 (2001)	
		Mostafa Ronaghi, "Pyrosequencing Sheds Light on DNA Sequencing", Genome Research 2001, 11:3-11.	
		Carlos A. Garcia, et al., "Mutation Detection by Pyrosequencing: Sequencing of Exons 5-8 of the p53 Tumor Suppressor Gene", Gene 253, (2000), Pages 249-257.	
		Samer Karamohamed, et al., "Production, Purification, and Luminometric Analysis of Recombinant Saccharomyces Cerevisiae MET3 Adenosine Triphosphate Sulfurylase Expressed in Escherichia Coli", Protein Expression and Purification 15, Pages 381-388 (1999).	
		Mostafa Ronaghi, et al., "Real-Time DNA Sequencing Using Detection of Pyrophosphate Release", Analytical Biochemistry 242, Pages 84-89 (1996).	
		Mostafa Ronaghi, et al., "Real-Time Pyrophosphate Detection for DNA Sequencing", Science Vol. 281, 1998. Pages 363-365.	
		Pal Nyren, et al., "Detection of Single-Base Changes Using a Bioluminometric Primer Extension Assay", Analytical Biochemistry 244, Pages 367-373 (1997).	
		Samer Karamohamed and Pal Nyren, "Real-Time Detection and Quantification of Adenosine Triphosphate Sulfurylase Activity by a Bioluminometric Approach", Analytical Biochemistry 271, Pages 81-85 (1999).	
		Samer Karamohamed, et al., "Real-Time Bioluminometric Method for Detection of Nucleoside Diphosphate Kinase Activity", BioTechniques Vol. 26, No. 4, Pages 728-734, (1999).	
		Ann Erlandsson, et al., "Quantification of Bordetella Pertussis in Clinical Samples by Colorimetric Detection of Competitive PCR Products", APMIS 106, Pages 1041-1048 (1998).	

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		Guohua Zhou, et al., "Miniaturized Pyrosequencer for DNA Analysis with Capillaries to Deliver Deoxynucleotides", Electrophoresis 2001, Vol. 22, Pages 3497-3504.	
		Nader Pourmand, et al., "Multiplex Pyrosequencing", Nucleic Acids Research, 2002, Vol. 30, No. 7.	
		Solveig Eriksson, et al., "Cytochrome P450 Genotyping by Multiplexed Real-Time DNA Sequencing with Pyrosequencing Technology", ASSAY and Drug Development Technologies, Vol. 1, 2002, Pages 49-59.	
		Pal Nyren and Arne Lundin, et al., "Enzymatic Method for Continuous Monitoring of Inorganic Pyrophosphate Synthesis", Analytical Biochemistry, Vol. 151, Pages 504-509 (1985).	
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		Baback Gharizadeh, et al., "Multiple-Primer DNA Sequencing Method", Electrophoresis 2003, Vol. 24, Pages 1145-1151.	
		Eissa Hanna, et al., "ATP Sulfurylase from the Hyperthermophilic Chemolithotroph Aquifex Aeolicus", Archives of Biochemistry and Biophysics, Vol. 406 (2002) Pages 275-288.	
		Jonas Eriksson, et al., "Method Enabling Firefly Luciferase-Based Bioluminometric Assays at Elevated Temperatures", Analytical Biochemistry, Vol. 314 (2003), Pages 158-161.	
		Vuokko Jansson and Kristian Jansson, "Enzymatic Chemiluminescence Assay for Inorganic Pyrophosphate", Analytical Biochemistry, Vol. 304, (2002), Pages 135-137.	
		Guo-hua Zhou, et al., "Quantitive Detection of Single Nucleotide Polymorphisms For a Pooled Sample By a Bioluminometric Assay Coupled with Modifier Primer Extension Reactions (BAMPER)", Nucleic Acids Research, 2001 Vol. 29. No.19.	

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Sheet	5	of	10	Attorney Docket Number	5852.P012
<b>NON PATENT LITERATURE DOCUMENTS</b>					
Examiner Initials*	Cite No <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published			T <sup>2</sup>
		Masao Kamahor, et al., "A New Single Nucleotide Polymorphisms Typing Method and Device by Bioluminometric Assay Coupled with a Photodiode Array", Meas. Sci. Technol: 13 (2002), Pages 1779-1785.			
		Pal Nyren, et al., "Inorganic Pyrophosphatase-Based Detection Systems", Analytical Biochemistry, Vol. 220, Pages 46-52, (1994).			
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		Malin Nygren, et al., "Polymorphism in the Pertussis Toxin Promoter Region Affecting the DNA-Based Diagnosis of Bordetella Infection", Journal of Clinical Microbiology, 2000, Pages 55-60, Vol. 38.			
		Malin Nygren, et al., "Quantification of HIV-1 Using Multiple Quantitative Polymerase Chain Reaction Standards and Bioluminometric Detection", Analytical Biochemistry, Vol. 288, Pages 28-38, (2001).			
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		Jon Jonasson, et al., "Classification, Identification and Subtyping of Bacteria Based on Pyrosequencing and Signature Matching of 16SrDNA Fragments", APMIS, Vol. 110: Pages 263-272, (2002).			
		Hong Zhang, et al., "Crystal Structures of E. coli Nicotinate Mononucleotide Adenylyltransferase and Its Complex with Deamido-NAD", Structure, Vol. 10, Pages 69-79, 2002.			
		Ryan A. Mehl, et al., "Identification of the Escherichia coli Nicotinic Acid Mononucleotide Adenylyltransferase Gene", Journal of Bacteriology, Aug. 2000, Pages 4372-4374, Vol. 182.			

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		Erik Werner, et al., "Crystal Structure of Human Nicotinamide Mononucleotide Adenylyltransferase in Complex with NMN", FEBS Letters, Vol. 516, (2002) Pages 239-244.	
		Andrea M. Olland, et al., "Identification, Characterization, and Crystal Structure of Bacillus subtilis Nicotinic Acid Mononucleotide Adenylyltransferase", The Journal of Biological Chemistry, Vol. 277, No. 5, Pages 3698-3707, (2002).	
	N	Masao Kamahori, et al., "A New Single Nucleotide Polymorphisms Typing Method and Device by Bioluminometric Assay Coupled with a Photodiode Array", Meas. Sci. Technol., Vol. 13, (2002), Pages 1779-1785.	
		Grant Application, "Bioluminescence Regenerative Cycle (BRC) for Ultra-Sensitive Pathogen Detection", Xagros Technologies, Inc..	
		Katsutoshi, et al., "Bioluminescent Enzyme Immunoassay for Mouse Interleukin-6 Using Acetate Kinase", Analytical Sciences, January 1999, Vol. 15, Pages 91-93.	

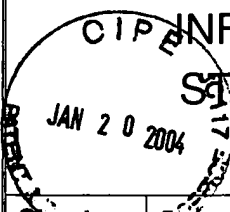
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		US- 6,363,783	4/2/2002	Turner et al.		
		US- 6,355,420	3/12/2002	Chan		
		US- 6,346,381	02/12/2002	Cohen et al.		
		US- 6,335,165	01/01/2002	Navot et al.		
		US- 6,293,273	09/25/2001	Byrne et al.		
		US- 6,291,182	09/18/2001	Schork et al.		
		US- 6,280,738	08/28/2001	Tai et al.		
		US- 6,268,517	07/31/2001	Filler et al.		
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		US- 6,210,891	04/03/2001	Nyren et al.		
		US- 6,147,246	11/14/2000	Weerasooriya et al.		
		US- 6,121,214	09/19/2000	Exner et al.		

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Examiner Initials*	Cite No. <sup>1</sup>	Foreign Patent Document	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T <sup>6</sup>
		Country Code <sup>3</sup> Number <sup>4</sup> Kind Code <sup>5</sup> (if known)				

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Substitut for Form 1449/PTO <div style="text-align: center; font-size: 1.2em; font-weight: bold;">           INFORMATION DISCLOSURE            STATEMENT BY APPLICANT  <i>(use as many sheets as necessary)</i> </div>				<b>Complete if Known</b>	
<div style="border: 1px solid black; border-radius: 50%; padding: 10px; display: inline-block; transform: rotate(-15deg);">             CIPE              JAN 20 2004           </div>				Application Number	10/627,557
				Filing Date	07/24/2003
				First Named Inventor:	Hassibi, et al.
				Art Unit	N/A
				Examiner Name	N/A
Sheet	8	of		10	Attorney Docket Number
5852.P012					

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		Number-Kind Code <sup>2</sup> (If known)				
		US-	6,013,267	01/11/2000	Blake et al.	
		US-	6,007,829	12/28/1999	Weinauf et al.	
		US-	5,879,686	03/09/1999	Blake et al.	
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		US-	5,866,135	02/02/1999	Blake et al.	
		US-	5,851,468	02/22/1998	Kaiser	
		US-	D402,561	12/15/1998	Vtrup et al.	
		US-	5,836,823	11/17/1998	Shellabarger	
		US-	5,763,042	06/09/1998	Kaiser	
		US-	5,747,287	05/05/1998	Blake et al.	
		US-	5,703,268	12/30/1997	Wachtendorf et al.	
		US-	5,702,816	12/30/1997	Kaiser	
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		US-	5,672,613	09/30/1997	Aldoma et al.	
		US-	5,650,109	07/22/1997	Kaiser et al.	
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<div style="position: relative; height: 100px;"> <div style="position: absolute; top: 0; left: 0; width: 100%; height: 100%; border: 1px solid black; border-radius: 50%; text-align: center; line-height: 100px; font-size: 2em; font-weight: bold;">           CIP         </div> <div style="position: absolute; top: 0; left: 0; width: 100%; height: 100%; border: 1px solid black; border-radius: 50%; text-align: center; line-height: 100px; font-size: 1.2em; font-weight: bold;">           JAN 20 2004         </div> </div> <h2 style="margin: 0;">INFORMATION DISCLOSURE STATEMENT BY APPLICANT</h2> <p style="margin: 0; font-style: italic;">(use as many sheets as necessary)</p>				Application Number      10/627,557	
				Filing Date                07/24/2003	
				First Named Inventor:      Hassibi, et al.	
				Art Unit                      N/A	
				Examiner Name              N/A	
Sheet      9      of      10				Attorney Docket Number      5852.P012	

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		US-	5,603,271	02/18/1997	Reinhart et al.	
		US-	5,593,536	01/14/1997	Kaiser	
		US-	5,566,631	10/22/1996	Reinhart et al.	
		US-	D373, 519	09/10/1996	Escalante et al.	
		US-	5,540,163	07/30/1996	Reinhart et al.	
		US-	5,534,424	07/04/1996	Vhlen et al.	
		US-	5,439,808	08/08/1995	Blake et al.	
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		US-	5,256,810	10/26/1993	Rowe et al.	
		US-	5,250,291	10/05/1993	Park et al.	
		US-	5,213,017	05/25/1993	Jones et al.	
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Sheet 10 of 10

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		US-	D311, 591	10/23/1990	Jones et al.	
		US-	6,355,420	03/12/2002	Chan	
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